

anthracene group, the dye compound being a polymer having a weight average molecular weight of at least about 5,000; and

exposing and developing the photoresist composition coating layer to provide a photoresist relief image.

61. The method of claim 60 wherein the photoresist coating layer is exposed with radiation having a wavelength of 300 nm or less.

62. The method of claim 60 wherein the photoresist coating layer is exposed with radiation of a wavelength of 248 nm or less.

63. The method of claim 60 wherein the substrate is a microelectronic wafer substrate.

64. The method of claim 60 wherein the polymer has a weight average molecular weight of at least about 7,000.

65. The method of claim 60 wherein the polymer is an anthracene acrylic copolymer.

66. The method of claim 60 wherein the photoactive component is a photoacid generator compound.

67. The method of claim 60 wherein the photoactive compound is an onium salt, a nitrobenzyl ether, an s-triazine compound, or a halogenated non-ionic photoacid generating compound.

68. The method of claim 60 wherein the photoresist is a chemically-amplified positive-acting resist.

69. The method of claim 60 wherein the photoresist is a negative-acting resist.

70. A method for forming a photoresist relief image comprising:

applying a coating layer of a photoresist composition on a substrate, the photoresist composition comprising a photoactive component and a polymeric dye that contains one or more polycyclic chromophores, the chromophore being selected from the group consisting of phenanthryl, acridine, quinolinyl and ring substituted quinolinyl; and

exposing and developing the photoresist composition coating layer to provide a photoresist relief image.

71. The method of claim 70 wherein the photoresist coating layer is exposed with radiation having a wavelength of 300 nm or less.

72. The method of claim 70 wherein the photoresist coating layer is exposed with radiation of a wavelength of 248 nm or less.

73. The method of claim 70 wherein the substrate is a microelectronic wafer substrate.

74. The method of claim 70 wherein the polymer has a weight average molecular weight of at least about 5,000.

75. The method of claim 70 wherein the photoactive component is a photoacid generator compound.

76. The method of claim 70 wherein the photoactive compound is an onium salt, a nitrobenzyl ether, an s-triazine compound, or a halogenated non-ionic photoacid generating compound.